

Rich and Responsible: Is ESG a Luxury Good?

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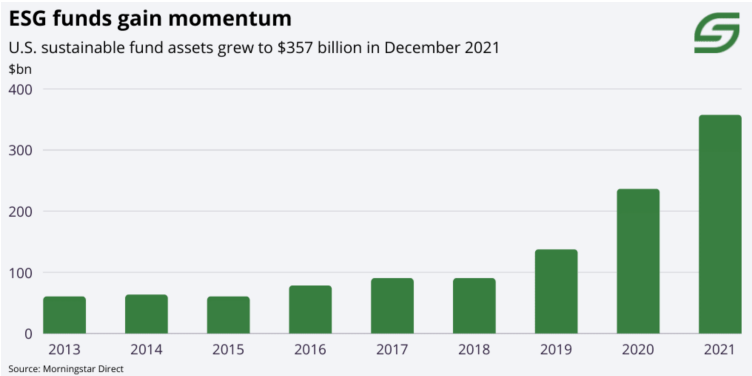
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- Q1: What are the implications? (e.g., Duchin et al., 2023; Bisceglia et al., 2023.)

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- Q1: What are the implications? (e.g., Duchin et al., 2023; Bisceglia et al., 2023.)
- Q2: What is driving the preference for responsible investing? (e.g., Riedl & Smeets, 2017; Giglio et al., 2023; Degryse et al., 2023).

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Question: Is responsible investing a luxury good?

Research Question

Question: Is **responsible investing** a **luxury good**?

- **Responsible (impact) investing** is an investment strategy that aims to generate specific beneficial social or environmental effects in addition to financial gains.
- A **luxury good** is a good for which demand increases more than proportionally as income rises.

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- Our experiment:
 - | Examine whether individuals who receive **windfall wealth gain** due to inheritances are more likely to invest in **ES(G) funds** and **green stocks**.

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 - | Windfall wealth is positively related to responsible investing
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- ① We document a notable rise of responsible investing among retail investors in Denmark
- ② We exploit windfall wealth from unexpected inheritances to document that responsible investing is a luxury good
 - | Windfall wealth is positively related to responsible investing
 - | The effect is mainly driven by active portfolio adjustments
 - | The effect is stronger at the extensive margin
- ③ Studying the possible channels, we
 - | Find evidence supporting the “warm glow” effect
 - | Do not find evidence that diversification, fund fees, or bank advising are the main drivers

Data

- 1 **Portfolio holdings** from the Danish Tax and Customs Administration (SKAT) Holdings of stocks & mutual funds at the end of the year
- 2 **Income and wealth information** are from the official records at the Danish Tax and Customs Administration (SKAT)
- 3 **Educational records** from the Danish Ministry of Education
- 4 **Causes of deaths** from The Danish Cause-of-Death Register at the Danish National Board of Health (Sundhedsstyrelsen)
- 5 **Individual and family data** from the official Danish Civil Registration System (CPR Registeret)
- 6 **Fund names and fees** from Morningstar and Nasdaq Nordic

Overall sample: 2011 to 2021.

Classification of Responsible Investing

① Mutual funds

- | **Challenge:** Individuals don't pay much attention to “formal” sustainability characteristics.
- | **Solution:** Classification of mutual funds based on names.

Mutual Funds Classification

- Classification of mutual funds based on names
 - | Lapanan, 2018; Curtis, Fisch, and Robertson, 2021; Geczy et al., 2021; Michaely, Ordóñez-Calafi, and Rubio, 2023; & Li, Naaraayanan, and Sachdeva, 2023.
- Keywords in Danish & English:
 - | ESG, sustain*, SRI, ethical, impact, . . . , alternative energy
- We use historical names to avoid classifying funds as ESG due to overwriting of historical data
 - | Few funds are classified as ESG due to name changes (Around 10% of funds in 2021 are a result of name changes)
 - | Most name changes come after the end of our study

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② Stocks

- | **Challenge:** The Main caveat is that ESG ratings on stocks are relative, not absolute. Moreover, different sustainability ratings are contradictory and mostly ignored by investors.
- | **Solution:** Classification based on “green” and “brown” energy stocks.

Stocks Classification

- In the current version, we use a manual check of energy stocks based on industry codes, name searches, and business scope

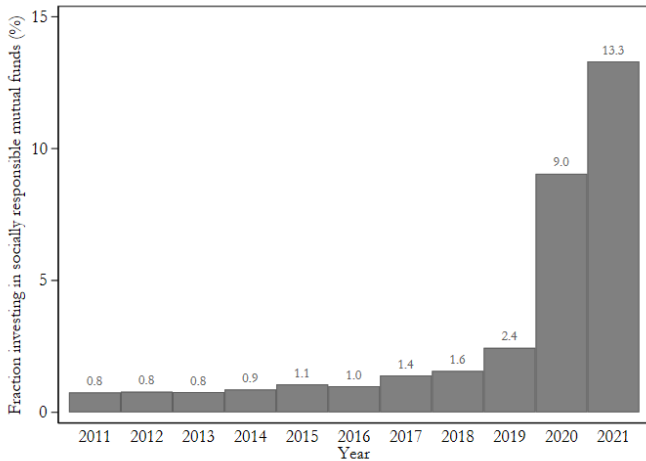
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- “Green” energy stocks (106 stocks)
 - | Engines & turbines (SIC 351)
 - | Solar power
 - | Wind power

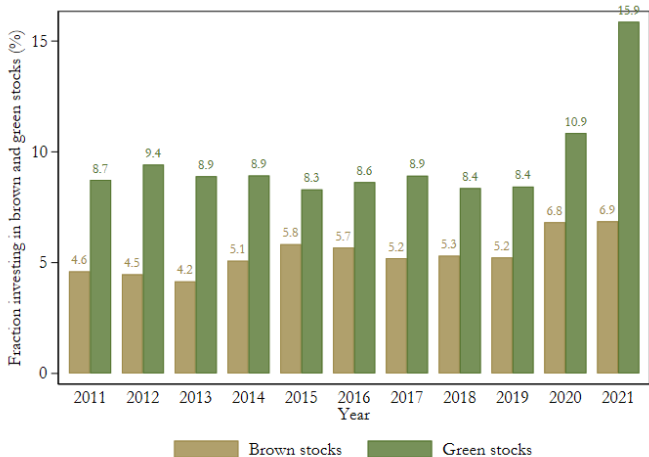
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- “Green” energy stocks (106 stocks)
 - | Engines & turbines (SIC 351)
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- “Brown” energy stocks (73 stocks)
 - | Oil & gas extraction (SIC 13)
 - | Petroleum refining and related industries (SIC 29)
 - | Gas production and distribution (SIC 492)
 - | Electric and gas, and other utility (SIC 493)

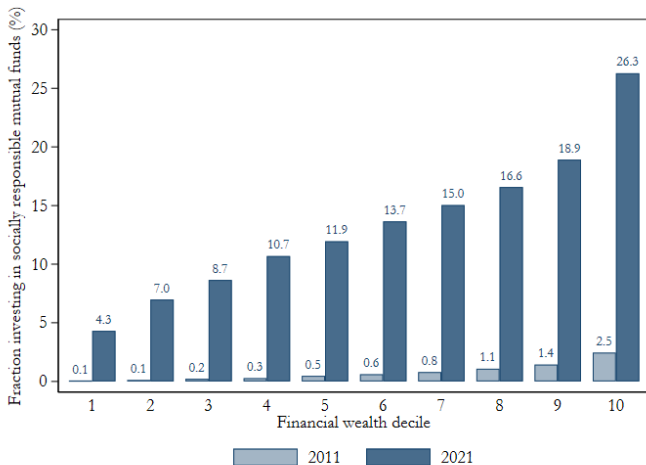
Rise of ESG Investors: Mutual Funds



Rise of ESG Investors: Stocks



Mutual Funds Holdings by Wealth Decile



Green Stocks Holdings by Wealth Decile



General Correlation Regression

$$Y_{i,t} = \alpha_0 + \alpha_1 \cdot \text{Financial_wealth}_{i,t} + \mu_i + \nu_t + \epsilon_{i,t}$$

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Dependent variable	Invest in ESG funds	Invest in green stocks	Portfolio weight on ESG funds	Portfolio weight on green stocks	Portfolio weight on green minus brown stocks
	(1)	(2)	(3)	(4)	(5)
Financial wealth (million DKK)	1.647*** (0.07)	1.608*** (0.04)	0.090*** (0.01)	0.105*** (0.01)	0.296*** (0.02)
Individual fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Municipality fixed effects	Yes	Yes	Yes	Yes	Yes
<i>N</i>	10,241,901	10,241,901	10,241,890	10,241,890	10,241,890
<i>Adjusted R</i> ²	0.355	0.680	0.377	0.683	0.663

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- Wealthier people are **more likely** to invest responsibly and invest a **higher fraction** responsibly.

Identification Strategy

- Inheritance due to parental death
- Identifying assumption:
 - | Timing of inheritance is random relative to investment decision
- Specification:

$$Y_{i,t} = \alpha_0 + \alpha_1 \cdot \text{Inher_wealth}_i \cdot \mathbb{1}\{t = T\} + \alpha_3 \cdot \mathbb{1}\{t = T\} + \alpha_i + \alpha_t + \alpha_m + \epsilon_{i,t}$$

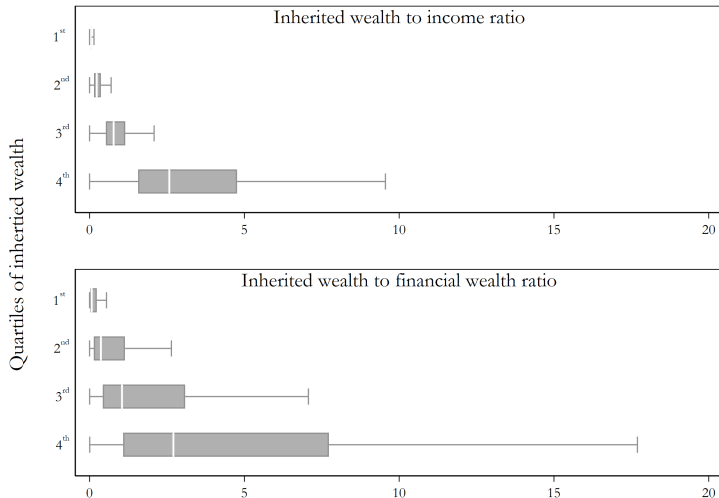
- Controlling for:
 - | Individual fixed effects (α_i)
 - | Time fixed effects (α_t)
 - | Municipality fixed effects (α_m)



How Does a Danish Beneficiary Look?

	Inherited wealth quartile				(4) – (1)
	1	2	3	4	
<i>Panel A: Individual characteristics</i>					
Inherited wealth (1,000 DKK)	17.1 (10.9)	101.4 (42.3)	330.7 (100.7)	1757.3 (6875.9)	1740.2*** (51.2)
Income (1,000 DKK)	440.3 (437.1)	459.5 (500.1)	471.5 (508.5)	536.2 (692.0)	95.9*** (6.1)
Financial wealth (1,000 DKK)	468.9 (1095.0)	566.2 (1248.4)	661.6 (1442.2)	1039.2 (2164.2)	570.4*** (18.0)
Age (years)	53.2 (8.1)	53.9 (8.1)	53.4 (8.2)	53.5 (8.1)	0.3*** (0.1)
Gender (percent male)	55.5 (49.7)	57.3 (49.5)	56.7 (49.6)	56.6 (49.6)	1.1** (0.5)
Married (percent)	63.2 (48.2)	64 (48.0)	62.1 (48.5)	61.1 (48.8)	-2.1*** (0.5)
Education (years)	14 (2.4)	14.4 (2.4)	14.7 (2.3)	15.2 (2.4)	1.2*** (0.0)
Number of siblings	2.8 (1.3)	2.6 (1.2)	2.3 (1.0)	1.9 (0.8)	-0.9*** (0.0)
N	18,002	18,158	18,206	18,293	

Windfall Wealth from Inheritance



Effect of Inherited Wealth

Dependent variable	Invest in ESG fund	Invest in Green stocks	Portfolio weight on ESG funds	Portfolio weight on Green stocks	Portfolio weight on Green minus Brown stocks
	(1)	(2)	(3)	(4)	(5)
Inherited wealth (million DKK)	1.594*** (0.18)	1.547*** (0.15)	0.209*** (0.04)	-0.017 (0.05)	0.131** (0.06)
After inheritance	4.376*** (0.31)	0.948*** (0.23)	0.762*** (0.06)	0.128* (0.07)	0.165* (0.08)
Individual fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Municipality fixed effects	Yes	Yes	Yes	Yes	Yes
<i>N</i>	145,318	145,318	145,314	145,314	145,314
<i>Adjusted R</i> ²	0.348	0.746	0.360	0.768	0.739

- Inheriting more **increases the likelihood** of investing responsibly.
- Inheriting more **increases the weight** of responsible assets.

Additional Tests

- 1 Active change or passive change? Active change
- 2 No significant difference across beneficiaries:
 - | male vs female
 - | younger vs older
 - | more educated
 - | in Copenhagen or any top 5 or 10 cities vs outside
- 3 Results are stronger in the second part of the sample (after 2016).

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 - **Test:** Compare the strength of the effect for those people who donate to charity vs those who do not contribute.
-
- **Data:** Donations are tax-deductible and are reported to SKAT. The tax deductibility reduces the cost of charitable donations by 27% to 30%.
 - Around 25% of the individuals in the sample donate (before inheriting).

Warm Glow

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	(1)	(2)	(3)	(4)	(5)
Panel A. Individuals making charitable donations before inheritance					
Inherited wealth (million DKK)	2.065*** (0.28)	2.009*** (0.28)	0.295*** (0.08)	0.033 (0.08)	0.218** (0.11)
<i>N</i>	33,582	33,582	33,582	33,582	33,582
<i>Adjusted R</i> ²	0.397	0.753	0.442	0.757	0.727
Panel B. Individuals without charitable donations before inheritance					
Inherited wealth (million DKK)	1.389*** (0.19)	1.355*** (0.17)	0.171*** (0.04)	-0.037 (0.05)	0.098 (0.07)
<i>N</i>	111,736	111,736	111,732	111,732	111,732
<i>Adjusted R</i> ²	0.323	0.743	0.308	0.771	0.742

- The effect is **stronger** for individuals who make donations.

Additional Channels

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- **Fund Fees:** Inheritances trigger diversification across more expensive funds leading to picking up ES funds.
 - **Test:** On average, wealthier investors do not reinvest in more expensive funds.

Bank advising

Financial advice from the broker (bank) may be pushing inheritors to invest into newly opened sustainable assets (higher fees, ECB interested in green investment...).

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- **Data:** Each holding in a "depot" account is associated with a bank account. First digits of the account number (similar to IBAN) indicate the bank and the department.
 - For each person-year, we take the bankreg code that corresponds to the largest fund/stock holding.

Bank Channel-1

Dependent variable	Invest in ESG fund	Invest in Green stocks	Portfolio weight on ESG funds	Portfolio weight on Green stocks	Portfolio weight on Green minus Brown stocks
	(1)	(2)	(3)	(4)	(5)
Inherited wealth (million DKK)	1.575*** (0.18)	1.446*** (0.15)	0.214*** (0.04)	-0.032 (0.05)	0.087 (0.06)
After inheritance	2.815 (2.70)	14.515* (8.62)	0.394 (0.45)	0.388 (0.36)	0.452 (0.37)
Individual fixed effects	Yes	Yes	Yes	Yes	Yes
Bank branch-year fixed effects	Yes	Yes	Yes	Yes	Yes
Municipality fixed effects	Yes	Yes	Yes	Yes	Yes
N	143,686	143,686	143,682	143,682	143,682
<i>Adjusted R²</i>	0.401	0.751	0.401	0.775	0.744

- Controlling for the bank branch-year fixed effects **does not** change the results.

Bank Channel-2

Dependent variable	Invest in ESG fund	Invest in Green stocks	Portfolio weight on ESG funds	Portfolio weight on Green stocks	Portfolio weight on Green minus Brown stocks
	(1)	(2)	(3)	(4)	(5)
Panel A: Large Banks					
Inherited wealth (million DKK)	1.431*** (0.19)	1.349*** (0.17)	0.192*** (0.05)	0.024 (0.05)	0.141** (0.06)
N	93,942	93,942	93,942	93,942	93,942
Adjusted R ²	0.393	0.749	0.313	0.775	0.745
Panel B: Small Banks					
Inherited wealth (million DKK)	2.232*** (0.35)	1.688*** (0.30)	0.276*** (0.07)	-0.043 (0.09)	0.106 (0.11)
N	43,752	43,752	43,748	43,748	43,748
Adjusted R ²	0.311	0.776	0.445	0.806	0.787
Panel C: Online Brokers					
Inherited wealth (million DKK)	1.222** (0.52)	1.726* (0.95)	0.045 (0.09)	0.055 (0.34)	0.447 (0.45)
N	5,584	5,584	5,584	5,584	5,584
Adjusted R ²	0.314	0.646	0.334	0.675	0.610

Additional tests

Alternative Specifications/Robustness:

- 1 Different horizon: -1/+3 years
- 2 Sample of inheritances due to sudden deaths
- 3 Controlling for the number of active and passive funds separately
- 4 ...

Conclusion

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- 2 We exploit windfall wealth from unexpected inheritances to document that responsible investing is a luxury good
 - | Windfall wealth is positively related to responsible investing
 - | The effect is mainly driven by active portfolio adjustments
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- 3 Studying the possible channels, we
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Mechanism

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Abraham Maslow (Psychological Review, 1943):

Parallel Trends-ESG funds

Parallel Trends-Green Stocks

How Does a Danish Investor Look?

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Back

Effect of Inherited Wealth: Active

Both **active** and **passive** channels matter.

Back

Related Literature

- ① Time-varying demand for sustainable assets
 - | Conflicting evidence on financial performance over good/bad times (Lins et al., 2017; Pastor & Vorsatz, 2020; Bansal et al., 2022)
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② Determinants of retail investors' allocation to responsible investments

- | Green values ([Bauer and Smeets, 2015](#); [Riedl and Smeets, 2017](#); [Degryse et al. 2023](#)), high financial literacy ([Anderson and Robinson, 2022](#)), age ([Haber et al., 2022](#))
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- | **Here:** Growth in sustainable investments is driven by wealthy investors

③ Investors' willingness to pay for sustainable investments

- | ESG funds typically more expensive ([Baker et al., 2022](#)), investors willing to pay extra ([Humphrey et al., 2021](#); [Heeb et al., 2023](#); [Riedl and Smeets, 2017](#); [Barber et al., 2021](#); [Giglio et al., 2023](#))
- | **Here:** Sustainable investments perceived as a luxury good